

Professors' perspectives on truth-seeking and new literacy

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ABSTRACT

New media and new literacy are essential in our contemporary paradigms of education and communication research. Though truth-seeking is one of the primary objectives inherent in higher education, the process for students may be less clear than it may be for trained academics or professors. The current study sought to explore how professors recommend that students seek truth in the information age. Relying on an assignment from a communication course, this study examined responses from student-led interviews with professors from across the U.S. and categorized trends in their recommendations for students. Overall twelve themes taken from advice on student truth-seeking emerged from the professors' responses. We couch these findings in the current internet era that is faced with overwhelming amounts of information, channels, problems of misinformation, and the spreading of false stories via social media. Conclusions center around the need for new literacy and new media awareness.

Keywords: *new media, new literacy, media literacy, truth-seeking, post-secondary education.*



LITERATURE REVIEW

The truth is – ironically – sticky. Where one perspective on truth can take on the staunch concrete-like form that *there is truth*, another may accept a more subjective form whereby information clings to multiple perspectives, and is adaptable, fluid, and subject to change. There is capital T, *The Truth*, and then there is truth. Information and data are the foundations of people’s beliefs regarding what is true, and we are faced with a contemporary society where information is available to people in unrecordable amounts and insurmountable ways. Educators are faced with how to grapple with the influence of this data and its consequences. One of the goals of higher education is to prepare students to function in the New Media Age (Kress, 2003) and to increase their information and media literacy.

While higher education has many purposes, one central objective is for scholars and students to seek the truth (see Knapp & Earnest, 2000). Truth-seeking is essential enough to the mission of the scholarly enterprise that several universities in the U.S. don the Latin term *veritas* in their seals or mottos.

Students enrolled at the university are encouraged to expand their previously held conceptions of the world through their coursework, research, and extracurricular activities, where they can engage with people who share a variety of worldviews. Given the expansive nature of the internet and its impact on our academic, professional, and personal lives, it is essential for higher education to refocus on how students are exposed to new literacies through new forms of practice. New literacies are the “multiple, multimodal, and multifaceted” mediums and information communication technologies that require users to critically analyze and navigate information (Leu, Kinzer, Coiro, Castek, & Henry, 2017, p. 4).

Through a class interview assignment used in a course named Lying and Deception, Knapp and Earnest (2000) examined how professors suggested to students that they can seek the truth. Those students set out on their university campus to find a professor who was not from the discipline of the course (i.e., Communication Studies) to assess the scholar’s perspectives on how students should best seek and verify the truth. Guided by the principle that literacy is deictic (ever-changing; see Leu et al., 2017) and that it is driven by the context in which one finds herself and the media source where information is being intercepted, we too set out to examine professors’ advice for students on how to seek

the truth, through our own class assignment provided to our own students. In keeping with the original assignment prompt given by Knapp and Earnest (2000), we merely added the terms “internet era” to the main question students asked in their interview of a professor. Rather than inspiring students to set foot out on their own campuses, we asked them to take to the internet to find professors to interview.

Students, of course, are not unlike the many other adults who are taken in by all the noise and fake news circulated on the internet and social media (including items spread by bots and trolls; Stukal, Sanovich, Bonneau, & Tucker, 2017). People are subject to their motivations to seek out information that agrees with their prior beliefs, to believe information that is familiar, and to seek out information from sources that align with their personal and political ideologies. Indeed, in the months leading up to the 2016 election, false stories and misinformation flooded social media, online news media, and the internet as a whole. According to Allcott and Gentzkow (2016) the average American adult was exposed to at least one fake news story in the months preceding November 2016. The authors found that approximately half of their sample believed the false information they were exposed to via social media. Ultimately, people are more likely to believe information that agrees with their ideologies and political leanings, and that which is familiar and has been repeated (Swire, Ecker, & Lewandowsky, 2017).

However, though it is difficult to combat the urges to believe and share false information, we suggest that students corroborate information they discover in their online searches. In exploring the sources where they have retrieved or been exposed to certain information, students can analyze and investigate the source’s biases, motivations, and causes. In that way students can triangulate information and become investigators who can tell reliable sources from those that are known to propagate information with low fidelity.

Regarding those sources, the pages returned by typical search engine results contain both sponsored and non-sponsored (organic) links and originate from the search algorithms embedded into the site (see Jansen & Spink, 2009). Because organizations pay for sponsored links, and these serve as revenue for search engine sites, they tend to be shown as the first returns at the top of pages. Targeted advertising used to return searches or advertisements on the page also track a number of different types of user metadata, including credit card transactions and previous searches or user location. In addition, many users of search engine sites may not

understand the inherent biases and controls used in returning results to their inquiries. One example of search engine bias is what Noble (2018) refers to as algorithmic oppression; she outlines how Google's search algorithm produces racist and sexist results. Few users acquire formal training on how to search and filter using search websites, nor do they understand the biases built into the models for generating user-centered searches. What is more likely is that they stumble onto their own practices and form individualized habits. There is an overwhelming amount of information to sift through when conducting research on the internet and it is beyond the scope and abilities of most users to further select or filter through information.

The propagation of social media in everyday information consumption also poses a problem for how users process and recall information. Recent research reveals that upwards of 14% of Americans refer to social media as their "most important" information source (Allcott & Gentzkow, 2017). Both humans and internet bots (Shao et al., 2018) spread misinformation and false news stories. Humans tend to spread fake news more than truthful stories because rumors tend to be more novel and tap into emotional reactions from users (Vosoughi, Roy, & Aral, 2018). The information age provides users with a seemingly unending flow of information, but also there are many channels feeding the flow of data to people in their everyday lives. Website platforms such as Reddit, Twitter, and others host information that may seem informal, but these sources may drive the social knowledge people use and share on a daily basis.

In their analysis, Knapp and Earnest (2000) discovered that their students, after reflecting on their respective interviews, were more engaged than the authors had originally anticipated; the students were critical of their interviewees when they shared questionable or hypocritical answers about truth. The students also seemed to gain an appreciation for the truth-seeking process and all its imperfections through their reflection papers. One of the central findings from responses provided by professors suggested students seek the truth by doing their own research, meaning that they should be reading, talking to different people, and adding variety to their life experiences. Such advice is still meaningful today.

In addition, another theme from the findings of Knapp and Earnest's (2000) study was the suggestion that student truth-seekers should remain skeptical. As far as their advice on determining what is truth, professors relied largely on generalities, suggesting, for

example, that *you know the truth when you feel it, or, when all questions have been answered*. This aligned nicely with how these professors in the late 1990s knew things to be true for themselves; some still put their faith in research, while others explained they had experienced it themselves (Knapp & Earnest, 2000).

One of the first studies looking at student internet research found that students struggle in their understanding of sources (Gillette & Videon, 1998). Specifically, over half of the student citations assessed by Gillette and Videon were actually links to other student papers. Burton and Chadwick (2000) found that students typically prefer sources that are easy to use and easy to find when conducting internet research. Additionally, Kim and Sin (2011) found that even though students may have criteria for selecting sources, they often did not apply their criteria; instead they opted for what was most accessible. However, while sources coming from Google or Wikipedia may be easier to use or find, students have been found to use these sorts of platforms early in the research process, not necessarily considering them the final stage of their research (Biddix, Chung, & Park, 2011; Selwyn & Gorard, 2016).

Biddix and colleagues (2011) also found that students prefer the internet over using physical books when doing their research. Van Scoyoc and Cason (2006) found the same trend, suggesting that students typically turn to the internet first when conducting research. Through an analysis of both the type of source used as well as the source itself, McClure and Clink (2009) found that students prefer search engines, though they do at times utilize online versions of traditional resources (e.g., library webpages). However, what may be most concerning is McClure and Clink's (2009) discovery that students have the most trouble when it comes to recognizing bias within their sources.

RATIONALE AND RESEARCH QUESTION

With this in mind, there has been a sizeable amount of research dedicated to the research habits of students. There has also been a lot of discussion and policy making related to the need for increased information and media literacy in higher education (e.g., Walsh, 2017). Though there are some studies that offer suggestions to professors about source analysis (Gillette & Videon, 1998), as well as best practices on how to inform students about the timeliness of research and source credibility (McClure & Clink, 2009), many of these studies are outdated given the rapid change in how research takes place online.

Specifically, our inquiry was inspired by our curiosity regarding how professors think about and assist students in their search for truth in the new media era.

We posed the following research question to guide our inquiry:

RQ: What do professors suggest that students do to seek truth in the internet era?

METHOD

After obtaining institutional review board permission, the authors collected data from an assignment provided to undergraduate students at a large Southeastern university. The students were, at the time, enrolled in multiple sections of a class entitled Truth, Ethics, and Deception. As part of their course assignment entitled “Truth Interview”, students were required to find and contact a professor from a different university, who researches and teaches in a field other than communication.

Students first asked the professor via email about their willingness to answer questions for a class assignment pertaining to truth. Once the professor agreed (many professors either ignored or rejected the email requests) students sent a follow-up email containing the pre-scripted question provided by their assignment direction sheet. Professors responded to the question of interest in our study (which aligned with that used by Knapp and Earnest, 2000): *What factors influence the search for truth for students in the current internet era and what are your recommendations for students?*

After receiving the emailed interview responses from the professor, the students were required to write a short paper discussing what they learned from the assignment and how it related to their course readings and lectures. Once the class assignment was graded, students were then asked via an in-class announcement if they would agree to allow their interview to be analyzed for research purposes. Students were asked to provide their response by logging in to a Qualtrics survey from a link posted to their course management site (i.e., Blackboard); extra credit was provided regardless of their decision to include their assignment in the study. In the cases where students opted into the study, we then emailed the professor they interviewed described the study, and provided a Qualtrics link where they could also opt to have their responses included in the study. In doing so, we sought to discover common

themes in the professors’ responses by creating categories based on their interview answers.

Interview responses from the study were coded using an inductive method for qualitative analysis (Glaser & Strauss, 1967), and emergent categories were organized based on the most frequent responses.

RESULTS

The Truth Interview assignment was used in two consecutive Truth, Ethics, and Deception courses during the Fall 2017 and Spring 2018 semesters, yielding a total of 269 undergraduate students enrolled in the large ($N = 224$) and medium ($N = 45$) lecture format classes. After attrition due to enrollment in the classes and students who failed to turn in the assignment, 205 and 39 students (respectively) submitted the completed assignment. Of those, 85 and 33 students opted into the study thus allowing us to analyze their assignment. These participants yielded 118 professors who we contacted to recruit for inclusion of their interview responses. Of those professors, 76 provided us permission to analyze their response data. The years in which these professors acquired their PhD ranged from 1971 to 2017 ($M = 1999.0$, $SD = 11.8$; we were unable to locate year of degree for six professors).

To analyze the professors’ responses, we used an inductive grounded theory approach to categorize and organize the response data (Glaser & Strauss, 1967). As per the methods of grounded theory, themes were created and assigned during the process of analyzing the data, by comparing the latent categories to themselves using constant comparative techniques. After an initial pass of collapsing the open-ended data into manageable categories, any categories that were conceptually similar were combined so that all themes were mutually exclusive. Ultimately, twelve themes emerged from the professors’ responses.

Given varying levels of interest in the topic and the open-ended nature of the interview responses, some professors gave lengthier responses that included multiple categories within their responses. In cases where a professor’s response included multiple themes, all were coded as separate comments. The maximum number of categories provided by any one professor was three. Overall, the sample yielded 143 total number of coded comments. After the first author coded all of the comments, the codebook and 15% of the professor comments were analyzed by the second author. The inter-coder agreement using Cohen’s Kappa statistic revealed agreement of .87. The two authors met to

resolve the disagreements and decided on final codes for the subsample.

PROFESSOR RECOMMENDATIONS

The most common suggestion from professors in response to the question of how students should seek the truth in the internet era was to *Research Information*. For instance, one professor explained that students should “learn what the scientific method is and apply it in any situation where you want to know the truth.” Another suggestion was that students should “not stop short of finding information related to any search; instead, one must investigate the information...”. Of the 143 comments coming out of the 76 professor response statements, the idea of researching the information students discovered through internet searches came up on 27 occasions, or in 18.9% of the responses.

The second-most common suggestion from professors addressed sources. Indeed, this theme suggested that students *Investigate Sources*. One professor said that “users need to assess the reliability of websites” with another recommending that students “stick to unbiased news sources and reputable organizations...”. In the professors’ responses, this suggestion was addressed 22 times, or in 15.4% of the responses to the question on how students should seek the truth in the internet era.

Next, the professors in our sample suggested that students should use *Critical Thinking* skills to find the truth – they offered this insight in response to the question 18 times in total, 12.6% of the time. For example, one professor suggested that a downside of the internet is that students do not have to do much critical thinking anymore because, instead of “coming to their own conclusions, they are able to see what others say and sometimes go with these responses.” Of course, in this respect, the onus may be on professors as students likely will not learn better critical thinking skills alone, indicating that critical thinking needs to be better integrated into coursework and lessons.

Fourteen of the professors (9.8%) mentioned that students should *Vary Sources* when seeking the truth. This suggestion related to the use and investigation of sources indicates students should look into the sources of their information, but further specifies that it is also important to vary the number of different sources which discussing a particular element of information. One professor recommended that students “seek as many independent sources as possible” while another

suggested they “check other sources to see if they are reporting the same thing.”

Thirteen (9.1%) professors suggested that it is important to not let the search for truth be led by one’s own *Belief Bias*. In order to seek the truth, these academics suggest that students must try to remain unbiased in their searches. As one professor put it, “let nature, not your beliefs or preconceived notions, establish what is most likely to be true or not.” In this way, these respondents are warning students of a confirmation bias. Avoiding unsubstantiated agreement with information because it fits one’s already established point of view is important in remaining unbiased.

Eleven (7.7%) professors suggested that, to get to the truth, students should maintain *Skepticism*. That is, students should question the material they encounter and consider alternatives, or remember that what they learn may be just one version of the truth (or outright false). These professors seemed to indicate that being skeptical is a mindset. One professor bluntly stated: “Just be skeptical. Of everything.” Similarly, another said that they have been served well in their career by having “a healthy dose of skepticism.” The skeptical mindset is one that requires individuals to seldom accept information as absolute the first time it is encountered or received. Even information that seems highly credible should also be met with trepidation. While some individuals take this mindset into all aspects of their lives with ease, others are more willing to accept what they read or are told. Even so, this is another straightforward, easily interpretable suggestion from professors. However, just like the suggestion of not being guided by one’s own beliefs, being skeptical is easy in theory, but more difficult, for some, to implement in real-life situations.

Next, 10 professors (7.0%) suggested to students that, to find the truth, they needed to be able to *Discern Good and Bad Information*. Specifically, this involves the reliability of information. One professor recommended that “students develop skills to discern reliable internet info [sic] from unreliable info.” Another professor explained that students “need to learn to be...discerning when it comes to distinguishing between the ‘truth’ and the vast array of half-truths that populate the internet.”

Nine professors (6.3%) suggested that students need to *Go Beyond the Surface* when searching for the truth. These professors were more explicit in providing their recommendations and were quick to warn students to go beyond initial Google or Wikipedia results when

searching for information. These professors cited students' common desire for quick answers, mentioning that students will often type something into a search engine, click the first link that appears related to their search, and leave their journey at that destination. One professor actually said the onus is on professors in that they "have to hold students to higher standards that lead them more toward 'truth' than simply googling [sic] something or using Wikipedia." However, one professor did provide encouraging remarks related to the use of Google, suggesting that not only is it "really easy to google the answer to any question" but that it is also "a pretty reliable way to get the correct answer."

Seven of the professors (4.9%) took a different approach to seeking truth in the internet era, suggesting that students should instead *Limit Internet Research* and seek the truth through non-digitized means. In this case, their general perspective is that content on the internet can be questionable, whereas information in other forms (e.g., books) may be more concrete and factual. Professors are aware that it is difficult to do this today, with one beginning his or her sentiment with a qualifier: "If you can, try to not use the Internet for everything." Most of the professors in the study did seem to realize the utility of the internet, but they also understood and commented on how it is imperfect: "Students should also be told not to use the internet, other than to find journal articles or books or newspaper articles." This professor brought up an important point in that some of the content on the internet is at least based on print content (e.g., online books, journal articles).

Other suggestions deal with finding the right people to help in a search. Seven (4.9%) professors also suggested that if students want the truth on a given topic, they should seek out the *Experts* in the field. Of course, finding experts is not always easy, and it is not always clear just who is an expert on a given topic, though one professor described an expert as "someone who has been looking at it for years." Two of the professors' comments in this category also mentioned the importance of using librarians in the search for information ("seek out research librarians; they are the best"). Indeed, librarians are information specialists and they have a greater understanding than most people of the best ways to conduct research.

The final suggestion, which was offered by four professors, is that the search for truth in the internet era, or in any situation for that matter, may be meaningless. To put it more succinctly, they believe that *There is No Truth*; one professor stated that "it is impossible to determine with 100% certainty whether something is

true." This is likely a shocking realization for some undergraduates who may not have heard such a revelation before in their lives. Though few of these professors provided this perspective in response to our question, we saw many instances in our students' assignments where professors avoided answering direct questions about how they know what is true.

DISCUSSION

Diogenes, the ancient Greek philosopher, is known to have carried a lantern, proclaiming to be looking for an honest person; legend has it that he never found one. Though his truth-seeking odyssey took a unique form during a time where oratory was one of the main mechanisms for sharing information, modern quests for truth rely on the ability to navigate texts and scrutinize online information. Students in their truth-seeking journeys must shine new metaphorical lights on the information they face.

As we find students spending an increasing amount of time online and less time in libraries, we are faced with new media problems. Organizations such as Wiki Education (wikiedu.org) are facing these issues through their partnerships with professors. By tackling issues of accuracy in online information, the nonprofit organization's mission is to provide professors and students with training and education on how to build and interpret user generated content via Wikipedia articles, portals, talk pages, and the numerous platforms for information sharing embedded into the site.

As institutions of higher education build modern Common Core curricula and shape their student learning outcomes they are facing the challenges of teaching media literacy in the New Media Age (see Kress, 2003). Old practices and teaching methods common in academia may not be changing rapidly enough for the new forms of practices (Leu et al., 2017) and contexts faced by today's students. Walsh (2017) has argued that conversations related to policy for information and media literacy are vital to the evolution of higher education pedagogy.

Accordingly, based on current political, social, and educational trends observed in our own lives, those of our students, and in our surrounding communities, we were inspired to explore how students and professors might navigate best practices for truthful information seeking in the internet era. Jumping off from the assignment and research of Knapp and Earnest's (2000) foray into truth seeking-odysseys, we developed our own inquiry given the new opportunity provided by

modern technology. Though the findings of our current study are not entirely novel in themselves, we believe they lay a foundation for an important conversation about how we develop new media literacy and use such a curriculum in working with modern students. Here we situate the themes that emerged from the professors' comments to our students and place them into a larger context of information literacy.

As Leu et al. (2017) have noted, "to have been literate yesterday, in a world defined primarily by relatively static book technologies, does not ensure that one is fully literate today where we encounter new technologies such as Google docs, Skype, iMovie, Contribute, Basecamp, Dropbox, Facebook, Google, foursquare, Chrome, education video games, or thousands of mobile apps" (p. 1). The suggestion from the professors in our study that students *Research Information* is on its surface an easy suggestion to comprehend and execute. However, in consideration of the Leu et al. (2017) comments and how they align to an ever-changing digital landscape, we know that there is an increased commitment to research and literacy as new information and social technologies are developed. Researching information requires that students shape their skills and remain literate in new technologies and understand how rapid influxes of information will challenge their research skills.

McGuinness' (2006) study of faculty practices in teaching information literacy to undergraduate students highlights patterns in education that should not be surprising. Overall, McGuinness's findings reveal that many assignments wave a hand at learning outcomes; they require that students use "research skills" to complete assignments, yet students are not given adequate instruction or skill building opportunities. Feedback after final research assignments are submitted often fail to increase information literacy of students. The professors interviewed by McGuinness suggested that the way to tackle information literacy, and to improve it in undergraduate students, is to rely on a "learn it by doing it" model, or by "applying theory to practice" (p. 579). One participant in that study highlighted that learning information literacy and research skills is akin to learning to use a computer program. This involves executing a practice-based and use-it-or-lose-it mentality, whereby students recall and understand that which is used the most – but over time, as they stop practicing the skill, it wanes. It is our suggestion that, instead of assuming our current students will use the various research tools available to them, we spend time showing them how we use the tools. These

research pro tips and other meaningful mechanisms they may not stumble upon will certainly aid their information literacy as we mentor students to adopt useful research practices. Problem solving, as one professor in McGuinness's study pointed out, can be a vital tool to realizing students' research potentials.

The professors in our study suggested that students *Investigate Sources* in their quests for the truth and this aligns with the work of Gillette and Videon (1998), which suggests that professors need to be more diligent in teaching their students about source analysis. However, McClure and Clink (2009) found that professors struggle with teaching these concepts to students. Given the recent events of the presidential election cycle of fall 2016 and the continuing misinformation crisis, the need to analyze sources is of growing importance to students' information literacy.

Pennycook and Rand (2018) discovered that the propensity to engage in analytical thinking will increase recognition of misinformation and reduce the sharing of false facts. Likewise, the professors in our study also suggested that students use *Critical Thinking* in determining what is true. Pennycook and Rand's study found that increases in critical thinking will reduce and curb behaviors that lead to false beliefs and the sharing of erroneous communications with others, thus substantiating the suggestion by the professors in our study.

Professors recommended that students ought to *Vary Sources* as they search for validity online. However, research has found that a library instruction course that taught students about searching for information and evaluating research was ineffective in changing the research habits of students (Currie, Devlin, Emde, & Graves, 2010). Of course, as instructors ourselves we experience how students often desire to take the path of least resistance in terms of completing class research assignments. With this in mind, it perhaps falls on instructors to be more critical of the sources used by students and to provide the proper instruction and class time to teach students to vary the sources they use for completing assignments.

The professors also warned our students to not rely on their own *Belief Bias*, or what others have termed a confirmation bias, when examining information. As Shedletsky (2018) points out, people often rely on their pre-existing and strongly held beliefs to determine whether information is authentic or bullshit, and force their perspective on veracity based on their personal and cultural values. Decades of social psychology and communication research reveal a strong mechanism of

motivated reasoning (Epley & Gilovich, 2016) whereby individuals seek out and confirm information that fits into their prior heuristics and behaviors. There are several other psychological mechanisms that aid in creating egocentric biases, lack of perspective, and failure to understand one's own subjectivity. For instance, naïve realism, a robust theory that explains how individuals believe their perspectives are objective and absent of bias, has been shown to be at play in the decision-making and perspective-taking behaviors of people across many contexts (see Gilovich & Ross, 2016).

Kahne and Bowyer (2017) experimentally tested how youth's prior beliefs influenced their accuracy judgments of online posts. Their findings revealed that consistent with theories of motivated reasoning, participants were biased based on their preexisting beliefs. Youths with increased political knowledge were not privy to less bias, but those with more media literacy training were better at discerning whether information was reliable. Their findings hold promise and should instill a need for increased education in new literacies.

The recommendation that students should maintain or develop a degree of *Skepticism* aligns with the other categories that emerged in this study. To be skeptical, of course, is to avoid simply accepting information at face value. Research has established that perceptions of media credibility can influence how users access and perceive information fidelity across sources (Kiousis, 2001; Rimmer & Weaver, 1987). However, the development of skepticism or views of credibility is a different question. Ashley, Poepsel, and Willis (2010) discovered that potential methods of increasing skepticism include raising awareness of news authors' commercial motivations, illustrating where the news comes from, and establishing who is really behind the production of news content. Suggesting that students be more skeptical is commendable, but research shows that in our current political and news media landscape it is possible for users to become cynical towards media and information from certain sources (e.g., Tully & Vraga, 2018). Professors must recognize that they play an important role in providing students with the tools needed to increase their respective levels of skepticism while also finding ways to restrict resentment and cynicism about the media.

The suggestion that students need to improve their ability to *Discern Good and Bad Information* focuses on evaluating one source of information while also being able to compare it to other sources. Interestingly, students are generally aware of why it is necessary to

distinguish good and bad information, citing accuracy and currency as being important; however, students typically do not apply their own criteria (Kim & Sin, 2011). This, again, is an important issue as students are armed with the correct knowledge, but they instead seem to opt for the quicker and easier path in their decision-making about the fidelity of information and sources.

The recommendation that students should *Go Beyond the Surface* when searching for truth revolves largely around the idea that they should not consider their job complete after clicking on the first source they see. In particular, it was suggested that sites like Google and Wikipedia should not be too heavily relied upon. Indeed, Jennings (2008) suggested that most students will use search engines, which often lead to Wikipedia, and that they are not aware of the pitfalls of this site. Instead of discrediting Wikipedia, however, Jennings (2008) indicates that librarians and professors alike should embrace both its good and bad qualities and teach students the proper ways of using the tool for research (e.g., relying on the reference lists for access to reliable sources).

While both of the previous professor recommendations are related in that they require students to do more with the information they acquire, such suggestions are potentially not as easy to execute as it may seem. In particular, the internet environment today, while certainly allowing for students to discern between good and bad information and go beyond the surface, can be stifling. Bawden and Robinson (2009) cite the lack of identity, whereby author names can be easily obscured and edited with ease, as a factor that makes it difficult to understand what is and is not credible. In addition, there is a sense of information overload which occurs when researching in web contexts due to the sheer depth and breadth of information available online (see Bawden & Robinson, 2009). Thus, there are a number of factors students have to navigate when searching for the truth online.

Perhaps aware of these complications, some professors recommended that students actually *Limit Internet Research* when searching for the truth. However, with the internet being both the quickest and easiest method of acquiring information, to simply suggest that students turn to print materials instead is a tough ask. Barberio (2004) discussed potential methods of encouraging students to limit their internet research while also increasing the consideration of print sources. In particular, Barberio suggests that course assignments requiring research should ask that students include a set number of both digital and print sources. While students

would only be performing such a task for a graded assignment, it is possible that they would maintain this research strategy in their searches for truth outside of the classroom. Adding explanations for these types of criteria will also increase students' understanding of the importance of going beyond the internet in their quest for information.

Of course, many students are not just overwhelmed by the amount of information on the internet, but they are also overwhelmed by libraries in general. This is likely what some professors had in mind when they suggested that students use *Experts*. Some of the experts recommended were, indeed, librarians. For years, however, students have held a number of erroneous perceptions of librarians (Hernon & Pastine, 1977; Jameson, Natal, & Napp, 2018) and many feel that librarians' knowledge is limited to the physical library, not necessarily conducting research (Fagan, 2003). Though methods for breaking boundaries are still being explicated, having positive interactions with librarians has been found to increase students' willingness to seek out librarians for assistance (Jameson, Natal, & Napp, 2018).

There is No Truth! This proclamation is one that is often greeted in our classrooms with blank stares and inquisitive remarks. Though discussions of subjective truth are usually expected in philosophy classrooms, we believe that the professors' recommendations that students realize that there may be no truth aligns with our own teaching philosophy – one that embraces multiple truths and subjective life experiences. In guiding students to discover what is true, it is important for instructors, across disciplines, to remind students that the truth can be subjective, built on prior social institutional expectations, and driven by those who retain power.

Peters (2003) traces the teachings of Foucault's lectures about truth-telling and makes connections to the work of Nietzsche and Heidegger about the subjectivity of truth in modern life. Historically, the ancient Greeks were concerned with the subjectivity of truth, with the elements that develop a truthful orator, and with how information and free speech (*parrhesia*) influence cultural and historical conceptions about what is true. While we need not necessarily expose our students in their college classes to the teachings of classical and modern philosophers, it may be useful for instructors to point out to students that what they are learning is but one version of a truth. That truth is up to interpretation, in flux, and ever changing. Explaining to students that there is no objective truth shared by all people is a

strategy which seeks to increase both their new and cultural literacy (Reid, 2003) in a time of increasing social diversity. It is a large educational accomplishment when our students realize that what they are learning from their textbooks and lectures is but a version of a truth and is subject to the biases and backgrounds of authors and professors. We remind our students who ask us for concrete answers to complicated situations first "that there is no truth," but we follow with a suggestion on how to grapple with a problem or situation. We suggest this is a meaningful teaching tool that many teachers are likely to avoid.

Friese & Friese (2019) outline how using Kuhn's theory of scientific revolution as a lens is useful for understanding the practice and teaching of media literacy. Instead of viewing critiques of media literacy (e.g., Boyd, 2017, 2018) as a block towards academic progress, it might be more useful to instead interpret such alternative views/critiques of current media literacy techniques as scientific development which moves the discipline towards new paradigm change – one that is currently developing in regards to how we understand media literacy, and one that will bring new understanding as we enter a model shift in media literacy theory, practice, and education. Rather than be discouraged, cynical, or apathetic, it is important for instructors to inspire students to understand that the current landscape is not necessarily the end, but rather an optimistic beginning which involves grappling with current and modern forms of communication and information exchange. Rather than acting as though professors have concrete and absolute answers, it may be better for them to model for students that the truth is messy, complicated, and can be dealt with via multiple means; and that one can arrive at different destinations when seeking the truth. That is, professors may want to struggle visibly as they guide their students towards truth seeking.

CONCLUDING REMARKS

What is the best way to tackle students' learning of new literacy? How do we know, as teachers, that our students are learning new literacy and are aware of their biases and shortcomings when faced with discerning truth from fiction? Learning measurement has been distinguished in the field as being either affective or cognitive – essentially, as a change in feelings or a change in thinking (Lane, 2015). Affective learning is organized into a hierarchy of five stages: receiving, responding, valuing, organizing, and internalizing

(Krathwohl, Bloom, & Masia, 1974). Cognitive learning, originally introduced by Bloom (1956), but eventually revised by Anderson and Krathwohl (2001), is organized into six dimensions: remembering, understanding, applying, analyzing, evaluating, and creating. A number of different methods have been attempted to study both types of learning, but many of them have proved to be problematic for one reason or another (Goldman, Goodboy, & Bolkan, 2016; Mottet, 2015; Witt, 2015).

Future research should consider the possibility that an indirect outcome from conducting interview assignments about truth, and from taking a course about truth and deception, is that students come to have a higher degree of skepticism than they had previously. More of a proxy for learning, students' increased skepticism may indicate a degree of both affective and cognitive learning; indeed, these different types of learning have actually been found to be more similar than different on occasion (Goodboy & Myers, 2008). Learning proxies are not necessarily new; as evidenced by the Revised Learning Indicators Scale (Frymier & Houser, 1999), learning can be measured indirectly via behavioral indicators that lead to learning. Professors should examine how they build their course syllabi and learning outcomes to incorporate opportunities for these types of learning opportunities for new literacy and research skills.

However, it is also important to recognize that increasing skepticism in students may also lead to forms of cynicism, apathy, and a disconnect from social and democratic life. The social media environment is becoming siloed and homogenous, as people communicate with like-minded others (in what have been called "echo chambers").

Mihailidis and Viotty (2017) recommend four considerations for "repositioning" media literacies in a "post-fact culture" (p. 450-451). They write that media literacy research, practice, and teaching would be wise to increase: 1) connections with others and embracing of differences as people progress past merely analyzing mass media; 2) moving away from individualistic skill development in literacies and advancing towards mechanisms for caring and collectivism in how media is used and consumed; 3) repositioning media literacy skills as a facilitator of civic participation rather than solely as a critical skill alone; and 4) moving away from apolitical media consumption and instead towards "ways in which media can be used to impact, at realistic scale, the political, social, and cultural issues that define our democracy" (p. 451). Heeding the suggestions of

Mihailidis and Viotty will better position students and citizens in a landscape of mutual understanding and exchange. While it may not address all polarizing rhetoric, it will assist citizens in reaching greater understanding while they are online, consuming and sharing media and messages.

In much the same way that Diogenes shone a light in the face of people who he was trying to verify as truthful, truth-seekers in the modern age must be able to distinguish good from bad information, and reliable from unreliable people, online. While Wikipedia seems to be the scapegoat for criticisms such as "anyone can edit it", the web in its current form offers opportunities as a place where everyone has editing rights and access to information is seemingly unlimited. The future of truth in the information age may be grim, but as noted by the professors who were willing to guide our students, there are mechanisms which can increase one's ability to find truth in a time of misinformation.

Perhaps the most prescient conclusion we can draw is that education is faced with a new paradigm, one that requires that new literacy be provided to students. Compared to libraries, which are also home to a vast amount of information, the internet is a space where students are less educated on how to best navigate information. The findings of recent research are promising as they suggest that increasing students' media literacy may assist in discerning valid information from misinformation, and provide students with more chances at reaching the potentially unattainable truth.

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